

CLAIMS

What is claimed is:

1. A method for separating at least one lower polarity fluid from a mixture of fluids having varying polarity, comprising:
5 contacting at least one low polarity or non-polar polymeric membrane with said mixture comprising fluids of varying polarity under conditions such that said at least one lower polarity fluid selectively permeates through said membrane.
- 10 2. The method of claim 1, further comprising the step of eluting said at least one lower polarity fluid which has permeated through said membrane.
- 15 3. The method of claim 1, wherein said mixture comprising fluids of varying polarity comprises dimethyl carbonate, ethylene glycol and methanol, and said lower polarity fluid comprises dimethyl carbonate.
4. The method of claim 1, wherein said membrane is an integral part of a chemical reactor.
- 20 5. The method of claim 3, wherein said mixture comprising fluid of varying polarity are formed via the reaction of ethylene carbonate and methanol.
6. The method of claim 1, wherein two or more low polarity or non-polar polymeric membranes are contacted by said mixture in series, wherein the
25 permeated liquid from one membrane contacts the next adjacent membrane.
7. The method of claim 6, wherein said membranes have different flux rates and different selectivity relative to the selectively permeable fluid or fluids which contact each respective membrane.

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8. The method of claim 1, wherein said membrane further comprises a porous support layer.

5 9. The method of claim 1, wherein said membrane is a composite membrane comprising a plurality of polymeric layers.

10 10. The method of claim 1, wherein said lower polarity fluid comprises hydrogen.

11. The method of claim 1, wherein said membrane is a synthetic or naturally occurring latex membrane, wherein said synthetic latex membrane is selected from the group consisting of: polyisoprene, styrene-butadiene copolymers, neoprene and mixtures thereof.

15 12. The method of claim 1, wherein said membrane is one which has a ratio of heteroatoms chemically bonded to the carbon atoms in said membrane to the number of carbon atoms of less than about 0.2.

20 13. The method of claim 12, wherein said ratio is less than about 0.05.

14. A process for producing a dialkyl carbonate which comprises the following steps:

25 (a) reacting an alkanol with an alkylene carbonate, thereby forming a product mixture comprising said dialkyl carbonate, said alkanol and said alkylene carbonate; and

30 (b) separating at least a portion of said dialkyl carbonate from said product mixture by contacting at least one low polarity or non-polar polymeric membrane with said product mixture under conditions which produce a permeate comprising said dialkyl carbonate in a concentration higher than in said product mixture from step (a).

15. The process of claim 14, wherein said product mixture further comprises an alkylene glycol.

5 16. The process of claim 14, wherein said dialkyl carbonate is dimethyl carbonate.

17. The process of claim 14, wherein said membrane is one which has a ratio of heteroatoms chemically bonded to the carbon atoms in said membrane to the number of carbon atoms of less than about 0.2.

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18. The method of claim 17, wherein said ratio is less than about 0.05.